VESSEL MANAGEMENT PLAN

For

JORGENSON FORGE EARLY ACTION AREA REMEDIATION PROJECT

CONTRACT NO. XXXXX

JORGENSON FORGE CORPORATION

SEATTLE, WASHINGTON

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TABLE OF CONTENTS

Appendix E: Vessel Management Plan

1.0 Introduction

Jorgensen Forge is an operating facility that manufactures precision machine forgings from material grades that include carbon, steel, aluminum, titanium, and nickel based alloys. The facility has been operated by the Jorgensen Forge Corporation (Jorgensen Forge) since 1992 and was previously managed by the Earl M. Jorgensen Corporation (EMJ) from 1965 to 1992. In 1992, the United States Environmental Protection Agency (USEPA) placed the Lower Duwamish Waterway on the National Priorities List (NPL) and the Jorgensen Forge shoreline was included. Sampling activities to determine the extents of impacted sediments began in 2003. The results of the investigations concluded shoreline and bank soil and sediment along the Jorgensen Forge property contained elevated concentrations of PCBs that present a risk to human health. A final Engineering Evaluation/Corrective Action was approved by the USEPA in 2011 leading to the preparation of a Basis of Design Report for the Jorgensen Forge Early Action Area in March 2013 by Anchor QEA, LLC. (Anchor) on behalf of EMJ and Jorgensen Forge. A Bid Specification package and Design Drawings for the Early Action Area Remedial Action were prepared by Anchor and Envirocon was solicited to provide a proposal for completing the removal action.

This Vessel Management Plan has been has been prepared by Envirocon for the Jorgensen Forge Early Action Area Project and is included as Appendix E to the Project Work Plan (which will be attached to the RAWP).

2.0 Purpose and Objectives of the Vessel Management Plan

The purpose of the Vessel Management Plan is to detail navigation coordination and management at the Jorgensen Forge property during the course of in-water work activities which include dredging, debris removal, backfill, and water treatment.

The objectives of the Vessel Management Plan include providing for:

- Identification and specifications of all in-water equipment to be utilized
- Navigation routes
- Waterway coordination
- Means and methods for monitoring and controlling traffic
- Mooring plan.

3.0 Proposed Water Equipment

Dredge Barge

The dredge barge is a steel deck barge owned by Quigg Brothers, Inc. (Quigg) with an Envirocon Komatsu PC800 excavator tied down to the deck of the barge and a vessel name of Aberdeen. The vessel is 120 feet by 40 feet and has a draft of approximately 5 feet. The dredge barge has two fixed spuds and one walking spud for movement.

Derrick Barge

The derrick barge is a steel barge owned by Quigg with a 135-ton crane and a vessel name of Skookum. The vessel is 104 feet by 40 feet and has a draft of approximately 6 feet. The derrick barge has two fixed spuds and requires a tug for movement.

Dewatering Barge

The dewatering barge is a steel deck barge owned by Quigg and a vessel name of Hoilland. The vessel is 80 feet by 30 feet, has a small crane for moving the dewatering pump, a 6" high solids pump, and has a draft of approximately 3 feet. The dewatering barge has two fixed spuds and requires a tug for movement.

Backfill Material Barges

The backfill material barges are two steel decked Island Tug and Barge (ITB) barges with a 1,000 to 1,500 ton material capacity and vessel names of ITB 168 and ITB 166. Both barges are 159 feet by 50 feet and has a potential draft up to 11.5 feet. The certified tonnage curves have been provided as Attachment E-1. The material barges require a tug to be moved.

Water Treatment System Barge

The water treatment system barge is a steel barge with a concrete wear deck owned by Boyer and a vessel name of Eglon. The barge is 230 feet by 60 feet and is expected to have a draft around 6 to 7 feet when all storage tanks contain water. The certified tonnage curves have been provided as an Attachment E-1. The water treatment system barge requires a tug to be moved.

Sediment Material Barges

There are five sediment material barges that range in sediment holding capacity from approximately 275 ton to 400 ton. They are all steel decked barges with 4 to 5 foot high water boards and watertight seals within the loading bins. The vessel names and sizes are as follows:

- The Wishkah barge owned by Quigg is 121 feet by 34 feet. The loaded draft is approximately 4.5 feet.

- The Montesano barge owned by Quigg is 125 feet by 34 feet. The loaded draft is approximately 5 feet.
- The Porpoise barge owned by Boyer Towing is 137 feet by 34 feet. The loaded draft is approximately 5 feet.
- The ITB 104 barge owned by ITB is 104 feet by 36 feet. The loaded draft is approximately 5.5 feet.
- The ITB 135 barge owned by ITB is 137 feet by 34 feet. The loaded draft is approximately 5 feet.

The certified tonnage curves have been provided as an Attachment E-1. The material barges require a tug to be moved.

Tugs

There are three tugs utilized for this project. Two are twin-screw diesel tugs owned by Quigg and one is a single-screw tug owned by Envirocon. The twin-screw tug with a vessel name of Mary Margaret has a 500 horsepower engine and dimensions of 40 feet by 18 feet. The twin-screw tug with a vessel name of Ironman has a 600 horsepower engine and dimensions of 52 feet by 12 feet. The single-screw tug with a vessel name of Little DeeJay has a 185 horsepower engine and is approximately 27 feet long. All tugs have a draft of approximately 5 feet. The twin-screw tugs are self-propelled and used to move material barges and equipment. The single screw tug is self-propelled and used to move the dewatering barge and dewatering pipeline.

Support Boats

There will be up to four support boats utilized for this project. These boats will be used to shuttle crews and transport supplies between barges. The support boats include:

- 21-foot aluminum skiff with a 90 horsepower outboard motor named Seawolf
- 17-foot aluminum skiff with a 60 horsepower outboard motor named Tuffy
- 16-foot aluminum skiff with a 20 horsepower outboard motor named Minnow II
- 14-foot aluminum skiff with a 10 horsepower outboard motor named Minnow

4.0 Navigation Routes

All navigation along the Lower Duwamish waterway will utilize the navigation channel between the Jorgensen Facility and the most northern support location at CalPortland approximately 3 nautical miles from Jorgensen Forge. The LaFarge trans-loading facility is approximately 2 nautical miles from Jorgensen. Equipment utilized during dredging and backfill activities will be staged in one of four places:

- On the Jorgensen property during use or preparation for use.
- At the southern Boeing Plant 2 boundary with Jorgensen Forge. Equipment will be placed as close to the Jorgensen Forge property line as logistically possible. Nine mooring piles will be driven in this area to support staging of equipment. To the best of Envirocon's abilities all

equipment will be staged outside the navigation channel. However, the navigation channel is narrow in this portion of the waterway and some equipment may sit in the navigation channel.

- At the LaFarge trans-loading facility during offloading of sediment and when empty sediment barges are waiting for a tug to bring the barge back to Jorgensen Forge.
- At CalPortland during loading of backfill materials.

The navigation route plan is included as Figure 1. It is anticipated that approximately one backfill barge a day or less will be required to be transported from CalPortland to the Site. CalPortland will inform Envirocon or Quigg when a backfill barge has been fully loaded and is ready for pickup. It is anticipated that a sediment barge will be transported to the trans-loading facility approximately every 5 to 6 hours. During downtime or when dropping off a sediment barge, any empty sediment barges ready to return to the site will be picked up.

5.0 Waterway Coordination

The Lower Duwamish Waterway is a busy industrial traffic route with a variety of users. Continuous coordination is required to ensure safe use of the waterway for Envirocon and its subcontractors as well as other users. In order to minimize the potential for waterway conflict Envirocon maintains compliance with Coast Guard regulations, waterway rules, adheres to right-of-way hierarchy, and coordinates with other waterway tenants. Tribal fishing activities that could affect navigation will be coordinated between the Client Group and the tribe and communicated to Envirocon, as necessary. Any other waterway navigational conflicts will follow the protocols outlined below.

Compliance with Regulations and Rules

Activities within the Lower Duwamish waterway are regulated by the United States Coast Guard. Regulations related to navigation travel are found in the International Regulations for Preventing Collisions at Sea 1972 (COLREGS) and govern all rules for navigation, vessel lighting, and communications protocols. Travel up and down the Duwamish waterway should occur in the main navigation channel at all times. Traveling outside the channel, especially at low tides could result and equipment damage, grounding, and project delays. All marine equipment must maintain the required safety supplies on board at all times, and radio communications should be in compliance with standard navigation protocols. Additional regulations address a variety of marine conditions from vessel worthiness to navigation to spill prevention to dredging limitations.

In addition to standard marine compliance activities in the Lower Duwamish require adherence to additional rules and regulations. Due to bridge construction activities on the South Park Bridge, a safety zone may be re-established in the vicinity of the bridge to protect marine workers and equipment. If this safety zone is re-established, travel within the bridge zone must be authorized by the Coast Guard Captain of the Port or their designated representative. Additional restrictions could be implemented and regular coordination with the Coast Guard office should be performed during the course of the work.

Since the Lower Duwamish dredging is an environmental dredging project, all dredging will be performed to the extent possible for an environmental clamshell bucket. Also, dredging shall be done at a controlled rate to limit disturbance of bottom sediment. Monitoring stations have been installed downstream of the work zone to track compliance with cleanup regulations.

Right-of-Way Hierarchy

Right of way hierarchy is defined formally in the International COL REGS. Within the local Duwamish waterway ITB and Boyer Logistics perform nearly all of the major equipment and barge movement. Typically, practical right-of-way is determined by communications between the two vessels, with generally the larger vessel having the right of way. Two channels are used on the lower Duwamish to communicate vessel to vessel. The tugs monitor both channels while the Aberdeen monitors one channel and the Skookum monitors the other.

Coordinating with Bridge Construction and Other Tenants

All activities that will affect access to portions of the Lower Duwamish waterway will be identified through the Coast Guard Local Notice to Mariners (LTAMs). The notices are posted weekly at http://www.navcen.uscg.gov/?pageName=lnmDistrict&region=13. In addition, due to Envirocon's coordination with Boyer and ITB since 2012 on the Lower Duwamish, generally the transporters will inform Envirocon ahead of official notification to the Coast Guard. However, the LTAMs must be checked weekly during dredging and backfill activities to ensure that Envirocon is informed and can inform the client as to any potential impacts to navigation channel access. Envirocon will also submit an LTAMs request to the Coast Guard prior to starting dredging activities.

6.0 Methods for monitoring and controlling traffic

Communications Protocols

Communication protocol on under the International COL REGS and is regulated on the Lower Duwamish through the use of two main channels. While the tugs are transporting barges between LaFarge or CalPortland and Jorgensen Forge, they will monitor both channels to prevent a waterway conflict. In addition, in the event of a waterway emergency Channel 16 is monitored by the Coast Guard to allow for rapid response.

Navigation Channel

At all points during dredging and backfill, every attempt will be made to limit equipment staging in the navigation channel. However, the waterway is narrow in the Jorgensen Forge section of the river and there will likely be regular movement of equipment that will enter the navigation channel. To minimize this, to the extent possible, the dredge barge and derrick barge will be aligned parallel to the shoreline during dredging and backfill operations. All water treatment barges and staged barges will be placed in line along the shoreline as close as possible without becoming grounded during mean lower low water (MLLW) conditions.

7.0 Moorage and Anchorage

All in-water equipment utilized will be secured using either mooring piles, fixed spuds located on the barge, or by movement with the tugs and being tied off to stationary or self-propelled equipment. Nine mooring piles will be placed by Quigg at the South end of the Boeing Plant 2 shoreline. These piles will provide anchoring and tie-off points for the water treatment barge, dredge dewatering pre-treatment barge, sediment material barges staged for loading, backfill material barges staged for use, the derrick barge when not in use, and miscellaneous support skiffs when not in use. The two twin-screw tugs will regularly be moving backfill or sediment barges or repositioning the derrick crane barge. The single screw tug will be continually moving the dewatering barge

Figures

Attachments